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THE DEVELOPMENT OF THE MISSION BAY-SAN DIEGO RIVER PROJECT

by Glenn A. Rick

CITY PLANNING DIVISION

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THE DEVELOPMENT OF THE MISSION BAY–SAN DIEGO RIVER PROJECT[1]

Glenn A. Rick[2]

San Diego is the site of one of America's largest recreation developments taking place at the present time.

For several years the City of San Diego, the State of California, and the Federal Government have been cooperating on a project involving flood control, navigation and recreation (see Figure 1).

Reclamation of several hundred acres of swamp and the diversion of a river were necessary preliminaries to the recreation development, which includes a small boat harbor of considerable size and many other facilities for both land and water types of recreation.

Much of the preliminary work is now finished and the framework is generally taking shape. Cost estimates made some time ago indicate the cost will exceed twenty-six million dollars. Well over one-half of this amount has been spent to date.

The chief construction activity at the present time is the dredging of the entrance channel leading to the Pacific Ocean. The Army Engineers have resumed construction postponed several years by the Korean War. The last session of Congress appropriated three-quarters of a million dollars to make the channel navigable.

This paper will not attempt more than an overall review of the design factors, nor is it going to elaborate on all of the economic, political and other phases of the project. The following account will touch upon these and some other general aspects which may have something in common with other small boat harbor improvements.

Mission Bay is not only a tidal estuary; it was, until the flood control project became a reality, the mouth of the San Diego River. Therefore, the first and chief problem was to divert this river away from Mission Bay as it had been diverted away from San Diego Bay in 1872 by the construction of a dike by the Army Engineers.

The fact that this old dike needed strengthening to protect large federal investments in military, industrial, and housing projects was a big help in securing congressional approval of the San Diego River-Mission Bay Project.

The San Diego River drainage basin is only some forty miles long and contains only 435 square miles, yet the design capacity of the new flood channel is 115,000 cubic feet per second. The floodway is 3.3 miles long. The rock-lined levees are about 900 feet apart. The navigation channel is 750 feet wide with water 20 feet deep at low tide. The outer harbor is also to be 20 feet deep. It will contain 250 acres. The rest of the bay will be 8 feet deep at low tide and contain 1700 acres. The publicly owned land around the bay will total about 1900 acres.

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1. Paper delivered to the ASCE, San Diego, California, Feb. 10, 1955.

2. City Planning Director, San Diego, Calif.

In 1926, California, acting through its local representatives, the Harbor Board for San Diego, entered into a number of 50-year tidelands leases on Mission Bay. Three of these leases are still in existence. In 1929, the State Legislature passed a bill, at the request of San Diego, which declared that Mission Bay was to be henceforth a State Park. The State Park Commission, not knowing exactly what the boundary of the new State Park was, determined through surveys and extensive court action an arbitrary mean high tide line.

1933. This year the State Legislature passed a law which, in effect, counteracted the 1929 legislation, although it was not until 1945 that the effect of the law was ascertained. This came about through an opinion of the Attorney General, who pointed out that the 1933 laws had placed Mission Bay under the State Lands Commission although that Board was not aware of the fact. If it were, it advised neither the City nor the State Park Commission.

The year 1945 was one of great importance to Mission Bay for it was then that several things took place.

After the Attorney General's opinion, the City of San Diego decided that Mission Bay, being surrounded by the City, should belong to the City rather than the State of California. Consequently, a bill was introduced in the State Legislature, and that year all of the tidelands and submerged lands of Mission Bay were transferred. The City has since purchased over 1300 acres of adjoining privately-owned property to complete the development.

It was also in 1945 that the State Legislature passed the important Flood Control Act. This law authorized the State Board of Water Resources to reapportion to the City such funds as qualified under the formula set up for projects approved by the Army Engineers and Congress. Also in 1945, the voters of the City passed a two-million dollar bond issue to start the development.

The State Legislature, having approved the San Diego River Flood Project, and the Congress of the United States likewise, San Diego was well on its way. Subsequent appropriations were made by both the State and Federal legislatures. Also, the City Council of San Diego appropriated additional funds and the voters of the City have since passed another two-million dollar bond issue.

To date, the City has spent over five and one-half million dollars, the State nearly three-million dollars, and the Federal Government over seven-million dollars, including the present dredging contract.

Design Controls

The basic design might be said to be the diversion of the San Diego River. The occasional flooding of the river and the subsequent depositing of silt in Mission Bay were not compatible with the dredging and otherwise improving of the bay. Consequently, the design required the flood channel to divert the river directly to the ocean.

The second basic design is evident by looking at the plan of the bay development. Here the idea was to create as much shoreline as possible. By using a design with numerous coves, inlets, peninsulas and islands, it was possible to increase the shoreline from only eleven miles to over thirty (see Figure 2). Another feature of the peninsulas is the design of a narrow neck where it joins the existing shoreline. This did a minimum amount of damage to the existing property values, as it neither obstructed the view nor did it locate large parking lots or public facilities near the existing homes or apartments.

Actually, the design of the project was controlled by the location of the flood channel, the location of the outer (20-foot) harbor, and the existing and

required road system. The locations of the many desirable facilities were determined by first deciding upon what was required and then finding the most logical location. Prevailing wind, direction and location of tidal flow, sun and other elements were factors in selecting some sites.

Outside, experienced advice was sought and followed on various things. For instance, hotel experts were asked to report on the proper location of resort accommodations. The motel, hotel, and trailer sites were located upon their advice.

Benefits to be Derived

The protection of valuable property and improvements from the danger of flood damage is one of the main benefits.

The reclamation of swampland and the conversion of hundreds of acres of worthless area into valuable property is a benefit that can be measured in dollars and cents. The prevention of beach erosion is another. The creation of a small boat harbor with sufficient water area for thousands of boats and adequate shore facilities is also a benefit which is measurable by financial returns to the community. Mosquito abatement is a beneficial by-product which has to be taken into account. The benefit to San Diego to add hundreds of acres of park and recreation land at and near the beach is of untold value.

The Army Engineers' report gave the project almost a two to one ratio of benefits to cost.

Relationship to City Plan

From the standpoint of park design, the Mission Bay Recreation leaves much to be desired. It is not isolated and self-contained; to the contrary, it is bisected and cut up by streets and highways into several park and recreation areas (see Figure 3). This disadvantage from the park operation and maintenance standpoint is off set by other factors. The design affords the public an opportunity to drive through a landscaped area instead of the usual uninteresting street. It also makes more convenient all of the various recreational activities to persons who are forced to use buses instead of automobiles.

Because the City surrounds Mission Bay, it was necessary to provide roads through the park for traffic not usually desired in a park.

Certain changes were necessary in zoning to protect park property, and, in turn, other controls were made to protect adjoining private lands.

The planning for the park was closely coordinated with all city planning, as both designs were prepared in the same office.

Operation

As the areas in Mission Bay become dredged and the shore areas filled, graded, and otherwise improved with utilities and facilities, the City Park and Recreation Department takes over those areas assigned to them. The City Property Division arranges for leasing areas to be developed by private interests. Other departments of the City are called upon to perform such services as they ordinarily do in other parts of the City.

Recently, an assistant to the City Manager was appointed to act as Director of the Mission Bay Project. He will work with and under the general direction of the Mission Bay Commission, a board appointed by the Mayor and City Council.

Future Program

More money must be spent to finish the job, which is far from finished. Over two million dollars will be requested from the United States Congress for the Army Engineers to complete the harbor dredging in the 20-foot depth

area and the other items agreed to in the original plan.

The City will have to raise about eight-million dollars more. A bond issue may be suggested in a year or two. Oil royalty funds from the state have been considered. Anticipating that such a request may be made, the City is asking the State Legislature this year to adopt a bill which will make it possible. This will be spent on dredging the rest of the 8-foot deep area, grading, roads, utilities, parking areas, landscaping, as well as bulkheading, riprapping and development of necessary items, such as comfort stations and headquarters building.

No completion date can be set. Although the congressional approval calls for the City to complete its work within five years after the federal part of the project is finished, no one knows just when Congress will appropriate the rest of its funds.

The public may enjoy a variety of recreational attractions now, but in a few years there will be many more things to do and see in Mission Bay. Here, then, is what one will find--

1) A small boat harbor to accommodate hundreds of ocean-going pleasure craft and sportfishing boats, as well as thousands of smaller boats within the bay itself.
2) Many miles of sandy beach for swimming and sunbathing.
3) Numerous fishing areas from boat or shore.
4) Speed boat and rowing courses.
5) Two golf courses
6) Riding trails
7) Picnic areas
8) Baseball and tennis
9) Motel, hotel and trailer accommodations for hundreds of visitors.
10) Restaurants, dining rooms and snack bars.

In fact, the things to be found at Mission Bay will be those things that attract persons to attend conventions—and, then, to skip talks like this and have a good time.

Figure 1. Aerial view of Mission Bay. Flood channel and bay entrance in foreground.

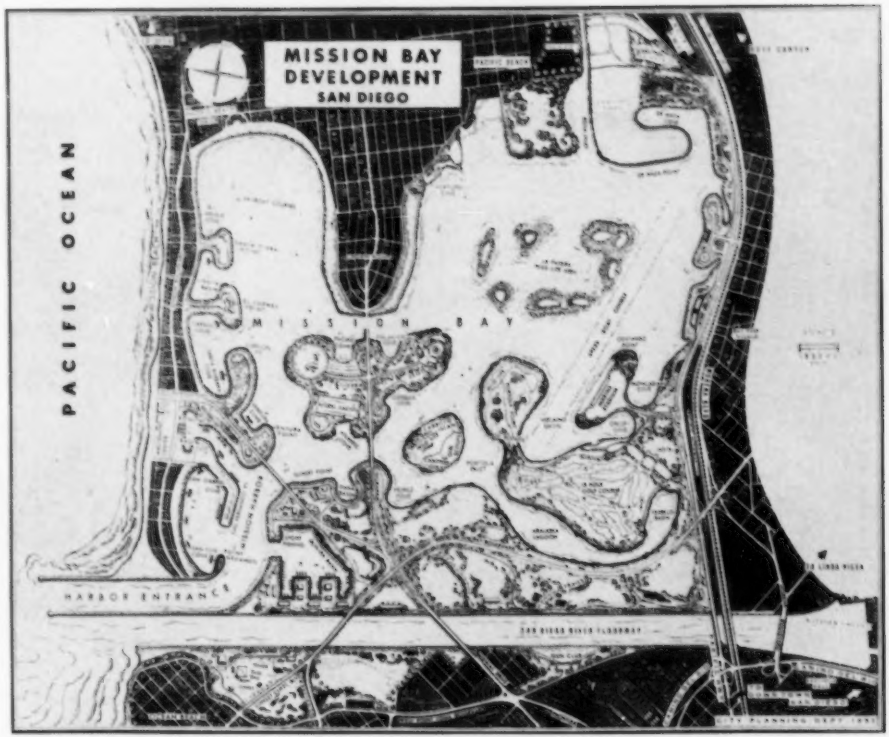

Figure 2. Plan showing design and ultimate development.

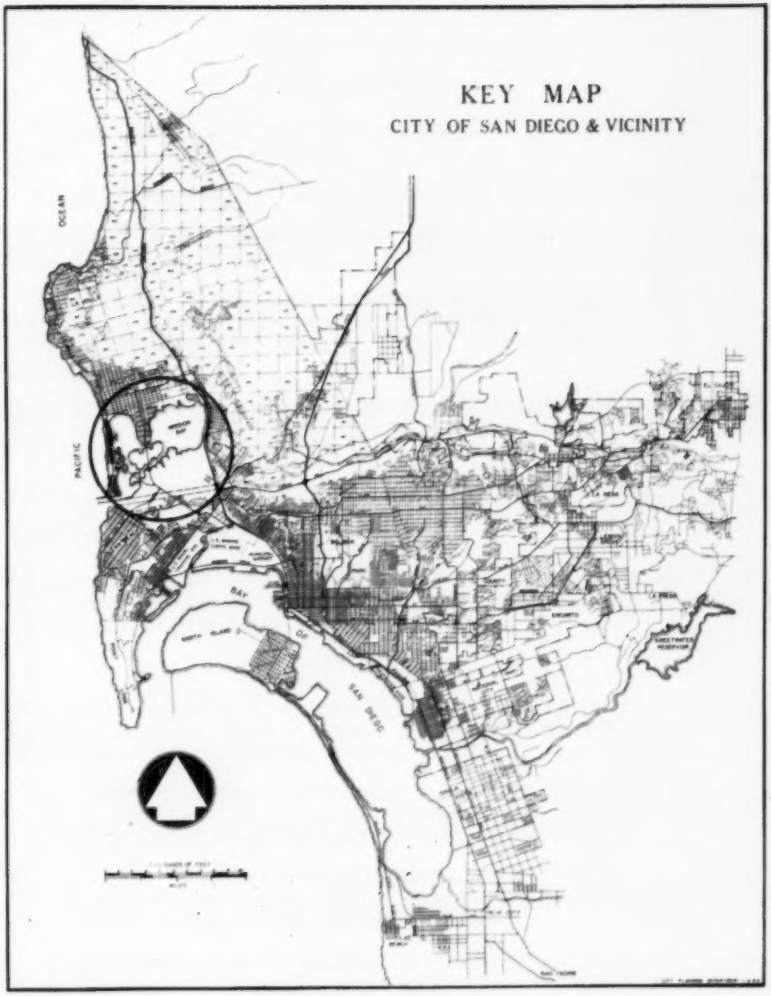

Figure 3. Map of City of San Diego, showing location of Mission Bay project.

PROCEEDINGS-SEPARATES

The technical papers published in the past year are presented below. Technical-division sponsorship is indicated by an abbreviation at the end of each Separate Number, the symbols referring to: Air Transport (AT), City Planning (CP), Construction (CO), Engineering Mechanics (EM), Highway (HW), Hydraulics (HY), Irrigation and Drainage (IR), Power (PO), Sanitary Engineering (SA), Soil Mechanics and Foundations (SM), Structural (ST), Surveying and Mapping (SU), and Waterways (WW) divisions. For titles and order coupons, refer to the appropriate issue of "Civil Engineering" or write for a cumulative price list.

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JUNE: 444(SM)[e], 445(SM)[e], 446(ST)[e], 447(ST)[e], 448(ST)[e], 449(ST)[e], 450(ST)[e], 451(ST)[e], 452(SA)[e], 453(SA)[e], 454(SA)[e], 455(SA)[e], 456(SM)[e].

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AUGUST: 466(HY), 467(HY), 468(ST), 469(ST), 470(ST), 471(SA), 472(SA), 473(SA), 474(SA), 475(SM), 476(SM), 477(SM), 478(SM)[c], 479(HY)[c], 480(ST)[c]; 481(SA)[c], 482(HY), 483(HY).

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c. Discussion of several papers, grouped by Divisions.

e. Presented at the Atlantic City (N.J.) Convention in June, 1954.

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